

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

MONTEREY RESEARCH, LLC,

Plaintiff,

v.

ADVANCED MICRO DEVICES, INC.,

Defendant.

Civil Action No. 6:21-cv-839

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Monterey Research, LLC (“Monterey”), for its Complaint for Patent Infringement against defendant Advanced Micro Devices, Inc. (“AMD”), alleges as follows:

INTRODUCTION

1. Monterey is an intellectual property and technology licensing company. Monterey’s patent portfolio comprises over 1,500 active and pending patents worldwide, including approximately 1,200 active United States patents. Monterey’s patent portfolio stems from technology developed from a number of leading high-technology companies, including Cypress Semiconductor Corporation. Those innovations have greatly enhanced the capabilities of computer systems, increased electronic device processing power, and reduced electronic device power consumption. Among other things, those inventions produced significant technological advances, including smaller, faster, and more efficient semiconductors and integrated circuits.

2. AMD has infringed and continues to infringe Monterey’s patents. Moreover, despite Monterey notifying AMD of infringement, AMD has thus far refused to license these patents or even engage in meaningful discussions with Monterey. Instead, AMD has continued to make, use, sell, offer to sell, and/or import Monterey’s intellectual property within the United States without

Monterey's permission.

NATURE OF THE ACTION

3. This action arises under 35 U.S.C. § 271 for AMD's infringement of Monterey's patents, including United States Patent Nos. 6,979,640 ("the '640 patent"); 7,609,799 ("the '799 patent"); 7,899,145 ("the '145 patent"); 8,572,297 ("the '297 patent"); 8,694,776 ("the '776 patent"); and 9,767,303 ("the '303 patent") (collectively, "the Patents-in-Suit").

THE PARTIES

4. Plaintiff Monterey is a Delaware limited liability company with offices in New Jersey and California.

5. Defendant AMD is a Delaware corporation with a regular and established place of business at 7171 Southwest Parkway, Austin, Texas 78735. AMD is a publicly traded company that may be served in Texas through its registered agent for service, CT Corporation System, 1999 Bryan St., Ste. 900, Dallas, TX 75201.

JURISDICTION AND VENUE

6. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a) at least because this action arises under the patent laws of the United States, including 35 U.S.C. § 271 *et seq.*

7. This Court has personal jurisdiction over AMD at least because AMD has a regular and established place of business in the State of Texas. AMD also has a registered agent for service of process in Texas. In addition, AMD has committed, aided, abetted, contributed to, and/or participated in the commission of acts of infringement giving rise to this action within the State of Texas, including in this District and elsewhere, by, *inter alia*, directly and/or indirectly making, using, selling, offering for sale, importing products (including importing products made by a patented process) and/or practicing methods that practice one or more claims of the Patents-in-Suit.

Furthermore, AMD has transacted and conducted business in the State of Texas, including in this District and elsewhere, and with Texas residents by making, using, selling, offering to sell, and/or importing (including importing products made by a patented process) products and instrumentalities that practice one or more claims of the Patents-in-Suit. Among other things, AMD, directly and/or through subsidiaries, affiliates, and/or intermediaries (including distributors, retailers, and others), uses, sells, ships, distributes, imports into, offers for sale, and/or advertises or otherwise promotes its products throughout the United States, including in the State of Texas. *See, e.g.*, www.amd.com. Moreover, AMD has purposefully and voluntarily placed its infringing products into the stream of commerce with the expectation that those products will be purchased and used by customers and/or consumers in the State of Texas, including in this District. At least for those reasons, AMD has the requisite minimum contacts within the forum such that the exercise of jurisdiction over AMD would not offend traditional notions of fair play and substantial justice.

8. Venue is proper in this District pursuant to 28 U.S.C. §§ 1391(b) and (c) and 1400(b). AMD has transacted and continues to transact business in this District. AMD also has committed and continues to commit acts of direct and/or indirect infringement in this District by, among other things, making, using, offering to sell, selling, and importing products that infringe the Asserted Patents. By way of further example, AMD develops certain infringing products within this District, such as, for example, the Ryzen and EPYC product families. As a further example, AMD has both the core's SRAM and data fabric teams, including teams that designed AMD's Infinity Fabric, that are based in this District. As a further example, AMD's mask design team, responsible, in part, for the planning and construction of the design of certain products that infringe at least a subset of the Patents-in-Suit, is based in this District. AMD has regular and established places of business in this District, including at least at 7171 Southwest Parkway, Austin, Texas 78735.

Our Locations



		Advanced Micro Devices
		7171 Southwest Pkwy
U.S.	Austin, TX	
		Tel: +1 512-602-1000

(<https://www.amd.com/en/corporate/locations>)

Venue is further proper based on the facts alleged in the preceding paragraphs, which Monterey incorporates by reference as if fully set forth herein.

THE PATENTS-IN-SUIT

9. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

A. U.S. Patent No. 6,979,640

10. The '640 patent, titled "Contact Structure and Method of Making the Same" was duly and properly issued by the USPTO on December 27, 2005. A true and correct copy of the '640 patent is attached hereto as Exhibit A.

11. Monterey is the owner and assignee of the '640 patent; owns all right, title, and interest in the '640 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

B. U.S. Patent No. 7,609,799

12. The '799 patent, titled "Circuit, System, and Method for Multiplexing Signals with Reduced Jitter," was duly and properly issued by the USPTO on October 27, 2009. A true and correct copy of the '799 patent is attached hereto as Exhibit B.

13. Monterey is the owner and assignee of the '799 patent; owns all right, title, and interest in the '799 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

C. U.S. Patent No. 7,899,145

14. The '145 patent, titled "Circuit, System, and Method for Multiplexing Signals with Reduced Jitter," was duly and properly issued by the USPTO on March 11, 2011. A true and correct copy of the '145 patent is attached hereto as Exhibit C.

15. Monterey is the owner and assignee of the '145 patent; owns all right, title, and interest in the '145 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

D. U.S. Patent No. 8,572,297

16. The '297 patent, titled "Programmable System-On-Chip Hub," was duly and properly issued by the USPTO on October 29, 2013. A true and correct copy of the '297 patent is attached hereto as Exhibit D.

17. Monterey is the owner and assignee of the '297 patent; owns all right, title, and interest in the '297 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

E. U.S. Patent No. 8,694,776

18. The '776 patent, titled "Authenticated Memory and Controller Slave," was duly and properly issued by the USPTO on April 8, 2014. A true and correct copy of the '776 patent is attached hereto as Exhibit E.

19. Monterey is the owner and assignee of the '776 patent; owns all right, title, and interest in the '776 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

F. U.S. Patent No. 9,767,303

20. The '303 patent, titled "Authenticated Memory and Controller Slave," was duly and properly issued by the USPTO on September 19, 2017. A true and correct copy of the '303 patent is attached hereto as Exhibit F.

21. Monterey is the owner and assignee of the '303 patent; owns all right, title, and interest in the '303 patent; and holds the right to sue and recover damages for infringement thereof, including past infringement.

FACTUAL BACKGROUND

22. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

23. The Patents-in-Suit stem from the research and design of innovative and proprietary technology developed by leading high-technology companies, including Cypress Semiconductor Corporation ("Cypress"). Cypress is an American multinational company and pioneer of cutting-edge semiconductor technology. Founded in 1982, Cypress has made substantial investments in researching, developing, and manufacturing high-quality semiconductor devices, integrated circuits, and products containing the same.

24. The Patents-in-Suit are directed to inventive technology relating to semiconductor devices, integrated circuits, and/or products containing the same.

25. Defendant AMD works closely with its customers, OEMs, foundry suppliers, distributors, and/or other third parties to make, use, sell, offer to sell, and/or import semiconductor devices, integrated circuits, and/or products containing the same. Among other things, AMD

optimizes its manufacturing process for its customers and optimizes its products for integration into downstream products. AMD's affirmative acts in furtherance of the manufacture, use, sale, offer to sell, and importation of its products in and/or into the United States include, but are not limited to, any one or combination of: (i) designing specifications for manufacture of its products; (ii) collaborating on, encouraging, and/or funding the development of processes for the manufacture of its products; (iii) soliciting and/or sourcing the manufacture of its products; (iv) licensing, developing, and/or transferring technology and know-how to enable the manufacture of its products; (v) enabling and encouraging the use, sale, or importation of its products in the United States; and (vi) advertising its products and/or downstream products incorporating them in the United States.

26. AMD also provides marketing and/or technical support services for its products from its facilities in the United States. For example, AMD maintains a website that advertises its products, including identifying the applications for which they can be used and providing specifications for its products. *See, e.g.,* www.amd.com/en. AMD makes available user manuals, product documentation, and other materials related to its products to residents of this District and to the United States as a whole. For example, AMD provides development content for specific chip products and applications; catalogs of hardware, software, and tools documentation; relevant support articles; various software code and tools; and case-specific technical assistance.

AMD'S PRE-SUIT KNOWLEDGE OF MONTEREY'S PATENTS AND CHARGE OF INFRINGEMENT

27. Before filing this action, Monterey, through its agent IPValue Management, Inc. ("IPValue"), notified AMD about the Patents-in-Suit and AMD's infringement thereof. Among other things, Monterey identified the Patents-in-Suit to AMD; alleged that AMD infringed the Patents-in-Suit, including identifying exemplary infringing products; sought to engage AMD in discussions regarding AMD's use of Monterey's intellectual property (including the Patents-in-Suit); and offered

to license the Patents-in-Suit to AMD. For example:

a. Monterey notified AMD that it infringes the '640 patent on October 23, 2018.

b. On July 24, 2020, Monterey sent a letter to AMD, notifying AMD of its infringement of certain Monterey patents, including the '640, '799, '145, and '297 patents. Among other things, Monterey identified representative AMD products that utilize those patents, expressly charged that AMD and its customers infringed those patents, and explained that AMD required a license from Monterey. Monterey requested a meeting with AMD.

c. AMD provided no non-infringement arguments nor invalidity arguments regarding the infringement described in the July 24, 2020 letter.

d. On June 4, 2021, Monterey sent another letter to AMD, referencing the July 24, 2020 letter and further notifying AMD of its infringement of the '776 and '303 patents.

e. Despite Monterey's repeated efforts, AMD still has not engaged in any meaningful discussions to end its infringement of the Patents-in-Suit and has not taken a license to them. Instead, AMD continues to, directly and indirectly, knowingly, intentionally, and willfully infringe Monterey's patents.

COUNT ONE
INFRINGEMENT OF THE '640 PATENT

28. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

29. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '640 patent.

30. The '640 patent is valid and enforceable.

31. The '640 patent is directed to interconnection structures, including interlevel

interconnection structures, devices containing these structures, and methods of making these structures and devices.

32. The '640 patent explains the disadvantages associated with prior art, which typically used fully enclosed contacts. Fully enclosed contacts suffered from disadvantages such as preventing the reduction of the size of semiconductor devices.

33. The '640 patent overcame that disadvantage by teaching, among other things, formation of a semiconductor, comprising forming a hole through a first dielectric layer; followed by extending the hole through an etch-stop layer, to expose a first conducting layer. The thickness of the etch-stop layer is at least one-half the smallest line width of the first conducting layer. The '640 patent teaches, among other things, that such an etch-stop layer on a lower conducting layer, where the thickness of the etch-stop layer is at least one half the smallest line width of the first conducting layer, prevents certain defects resulting from misalignment of the hole.

34. AMD has directly infringed, and continues to directly infringe, one or more claims of the '640 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, making, using, selling, offering to sell, and/or importing (including importing products made by a patented process) in or into the United States without authorization products covered by one or more claims of the '640 patent, including, by way of example and not limitation, products such as the Radeon RX 480 semiconductor device and other products in the Radeon 400, Radeon RX, Radeon 500, Radeon 600, Radeon Pro, Radeon Pro WX x100, Radeon Pro WX x200, Ryzen, Ryzen 3, Ryzen 5, Ryzen 7, Ryzen Threadripper, Ryzen 3 PRO, Ryzen 5 PRO, Ryzen 7 PRO, Athlon PRO, EPYC, EPYC Embedded, Athlon, AMD 3000 series, and AMD Instinct product families; products with the Polaris Architecture; other AMD 14 nm and smaller process node semiconductor devices, integrated circuits, and products; and all other semiconductor devices,

integrated circuits, and products with similar infringing technology (collectively, “the Accused ’640 Products”).

35. As one non-limiting example, AMD infringes claim 1 of the ’640 patent. For example, the process used to produce AMD’s Radeon RX 480 semiconductor device performs the steps of:

- a. forming a hole through a first dielectric layer (e.g., silicon dioxide layer);
followed by
- b. extending the hole through an etch-stop layer (e.g., nitride layer), to expose a first conducting layer (e.g., metal layer);
- c. wherein the thickness of the etch-stop layer (e.g., silicon carbon nitride layer) in the smallest dimension is at least one-half the smallest line width of the first conducting layer (e.g., metal layer).

36. AMD has known of the ’640 patent and its infringement of that patent since at least as early as July 24, 2020.

37. AMD, knowing its products infringe the ’640 patent and with the specific intent for others to infringe the ’640 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the ’640 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import (including import products made by a patented process) in or into the United States without authorization the Accused ’640 Products, as well as products containing the same. AMD knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or other third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on AMD’s website at <https://www.amd.com/en>. For example, AMD provides data sheets,

development content, diagrams, white papers, and software instructing customers on uses of AMD's products that infringe the '640 patent. *See, e.g.*, <https://www.amd.com/en/products/graphics/radeon-rx-480> and <https://www.amd.com/en/press-releases/amd-demonstrates-2016jan04>. Additional non-limiting examples include the materials found at <https://www.amd.com/en/products/specifications>.

38. AMD has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '640 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused '640 Products, which constitute a material part of the invention of the '640 patent, knowing the Accused '640 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.*, <https://www.amd.com/en> and <https://www.amd.com/en/products/graphics/radeon-rx-480>.

39. Monterey has sustained and is entitled to recover damages as a result of AMD's past and continuing infringement.

40. AMD has committed—and continues to commit—acts of knowing, or at least willfully blind, infringing acts despite knowing that its actions constituted infringement of the valid and enforceable '640 patent, despite a risk of infringement that was known or so obvious that it should have been known to AMD, and/or even though AMD otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. AMD's conduct in light of these circumstances is egregious. AMD's knowing, deliberate, and willful infringement of the '640 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT TWO
INFRINGEMENT OF THE '799 PATENT

41. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

42. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '799 patent.

43. The '799 patent is valid and enforceable.

44. The '799 patent is directed to electronic circuits, and more particularly to circuits for multiplexing signals from clock or data sources.

45. The '799 patent explains that many electronic systems included one or more synchronous components that relied on receiving related signals at substantially the same time to maintain proper operating characteristics of the electronic system. But variation in the arrival time of signals and other variations could cause a bit error when the data signal was incorrectly sampled by the clock signal.

46. The '799 patent explains the disadvantages with prior techniques that were developed to minimize the effects of timing delays, such as clock skew and jitter, which degraded the performance and reliability of synchronous systems. Some prior techniques involved including more than one phase lock loop (PLL) or delay lock loop (DLL) within a clock network for adjusting the timing of the clock path. A multiplexer circuit may have been included for selectively applying one of the PLL/DLL output signals to the clock path. However, prior multiplexer designs added crosstalk and power supply noise to the clock path when multiplexing signals (i.e., choosing between more than one signal) from the PLL/DLLs, which was undesirable in clock networks.

47. The '799 patent overcame that disadvantage by teaching, among other things, an improved multiplexer circuit with a first logic gate coupled for receiving a first signal, a second logic

gate coupled for receiving a second signal, and a third logic gate coupled to outputs of the first and second logic gates for transmitting either the first signal or the second signal. A logic block may be configured for deactivating one of the first and second signals by supplying a static control signal to the first and second logic gates, ensuring that only one active signal (e.g., either the first signal or the second signal) is supplied to the inputs of the first, second and third logic gates. The '799 further teaches that a user may arrange the logic gates within separate power domains to further isolate the logic gate inputs.

48. AMD has directly infringed, and continues to directly infringe, one or more claims of the '799 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, making, using, selling, offering to sell, and/or importing in or into the United States without authorization products covered by one or more claims of the '799 patent, including, by way of example and not limitation, products such as the Ryzen 3 1200 and other products in the Ryzen 3, Ryzen 3 Pro with Radeon Graphics, Ryzen 5, Ryzen 5 Pro with Radeon Graphics, Ryzen 7, Ryzen 7 Pro with Radeon Graphics, Ryzen Threadripper, Ryzen Threadripper Pro, Athlon Pro, Athlon with Radeon Graphics, and Epyc product families; other products with a Zen, Zen+, Zen 2, or Zen 3 architecture; and all other semiconductor devices, integrated circuits, and products with similar infringing technology (collectively, “the Accused '799 Products”).

a. As one non-limiting example, AMD infringes claim 1 of the '799 patent.

For example, the Ryzen 3 1200 includes a circuit comprising:

b. a first logic gate arranged within a first power supply domain and coupled for receiving a first signal (e.g., a first logic gate within a first power supply domain of the Ryzen 3 1200);

c. a second logic gate arranged within a second power supply domain and

coupled for receiving a second signal (e.g., a second logic gate within a second power supply domain of the Ryzen 3 1200);

d. a logic block arranged within a third power supply domain and coupled for supplying a control signal to the first and second logic gates for deactivating one of the first and second signals (e.g., a system and power management unit within a third power supply domain of the Ryzen 3 1200); and

e. a third logic gate arranged within a fourth power supply domain and coupled to outputs of the first and second logic gates for transmitting either the first signal or the second signal, whichever has not been deactivated by the logic block (e.g., a third logic gate arranged within a fourth power supply domain of the Ryzen 3 1200).

49. AMD has known of the '799 patent and its infringement of that patent since at least as early as July 24, 2020.

50. AMD, knowing its products infringe the '799 patent and with the specific intent for others to infringe the '799 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the '799 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import in or into the United States without authorization the Accused '799 Products, as well as products containing the same. AMD knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or other third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on AMD's website at <https://www.amd.com/en>. For example, AMD provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of AMD's products that infringe the '799 patent. *See, e.g.,*

<https://www.amd.com/en/processors/ryzen-with-graphics> and <https://www.amd.com/en/press-releases/amd-exhibits-pc-2017may30>. Additional non-limiting examples include the materials found at <https://www.amd.com/en/products/specifications>.

51. AMD has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '799 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused '799 Products, which constitute a material part of the invention of the '799 patent, knowing the Accused '799 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.,* <https://www.amd.com/en> and <https://www.amd.com/en/processors/ryzen-with-graphics>.

52. Monterey has sustained and is entitled to recover damages as a result of AMD's past and continuing infringement.

53. AMD has committed—and continues to commit—acts of knowing, or at least willfully blind, infringing acts despite knowing that its actions constituted infringement of the valid and enforceable '799 patent, despite a risk of infringement that was known or so obvious that it should have been known to AMD, and/or even though AMD otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. AMD's conduct in light of these circumstances is egregious. AMD's knowing, deliberate, and willful infringement of the '799 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT THREE **INFRINGEMENT OF THE '145 PATENT**

54. Monterey incorporates by reference the preceding paragraphs as if fully set forth

herein.

55. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '145 patent.

56. The '145 patent is valid and enforceable.

57. The '145 patent is directed to electronic circuits, and more particularly to circuits for multiplexing signals from clock or data sources.

58. The '145 patent explains that many electronic systems included one or more synchronous components that relied on receiving related signals at substantially the same time to maintain proper operating characteristics of the electronic system. But variation in the arrival time of signals and other variations could cause a bit error when the data signal was incorrectly sampled by the clock signal.

59. The '145 patent explains the disadvantages with prior techniques that were developed to minimize the effects of timing delays, such as clock skew and jitter, which degraded the performance and reliability of synchronous systems. Some prior techniques involved including more than one phase lock loop (PLL) or delay lock loop (DLL) within a clock network for adjusting the timing of the clock path. A multiplexer circuit may have been included for selectively applying one of the PLL/DLL output signals to the clock path. However, prior multiplexer designs added crosstalk and power supply noise to the clock path when multiplexing signals (i.e., choosing between more than one signal) from the PLL/DLLs, which was undesirable in clock networks.

60. The '145 patent overcame that disadvantage by teaching, among other things, an improved multiplexer circuit with a first logic gate coupled for receiving a first signal, a second logic gate coupled for receiving a second signal, and a third logic gate coupled to outputs of the first and second logic gates for transmitting either the first signal or the second signal. A logic block may be

configured for deactivating one of the first and second signals by supplying a static control signal to the first and second logic gates, ensuring that only one active signal (e.g., either the first signal or the second signal) is supplied to the inputs of the first, second and third logic gates. This eliminates crosstalk and power supply noise injection at the inputs of the logic gates. The '145 further teaches that a user may arrange the logic gates within separate power domains to further isolate the logic gate inputs.

61. AMD has directly infringed, and continues to directly infringe, one or more claims of the '145 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, making, using, selling, offering to sell, and/or importing in or into the United States without authorization products covered by one or more claims of the '145 patent, including, by way of example and not limitation, products such as the Ryzen 3 1200 and other products in the Ryzen 3, Ryzen 3 Pro with Radeon Graphics, Ryzen 5, Ryzen 5 Pro with Radeon Graphics, Ryzen 7, Ryzen 7 Pro with Radeon Graphics, Ryzen Threadripper, Ryzen Threadripper Pro, Athlon Pro, Athlon with Radeon Graphics, and Epyc product families; other products with a Zen, Zen+, Zen 2, or Zen 3 architecture; and all other AMD semiconductor devices, integrated circuits, and products with similar infringing technology (collectively, "the Accused '145 Products").

62. As one non-limiting example, AMD infringes claim 1 of the '145 patent. For example, the Ryzen 3 1200 includes an apparatus comprising:

- a. a plurality of power supply domains (e.g., the plurality of power supply domains in the Ryzen 3 1200); and
- b. a plurality of logic components, each of the plurality of logic components within a different one of the plurality of power supply domains (e.g., the Zen cores, L3 cache, and system and power management unit are within separate power supply domains), wherein each of

the plurality of logic components is configured to operate with a corresponding clock signal within a respective one of the plurality of power supply domains (e.g., the Zen cores, L3 cache, and system and power management unit are configured to operate with a corresponding clock signal in their respective power supply domains), wherein the plurality of power supply domains comprises first, second, third and fourth power supply domains (e.g., the plurality of power supply domains on the Ryzen 3 1200 comprises first, second, third, and fourth power supply domains), wherein a plurality of logic components comprises:

c. a first logic gate arranged within the first power supply domain and configured to operate with a first clock signal (e.g., a first logic gate within a first power supply domain of the Ryzen 3 1200 configured to operate with a first clock signal);

d. a second logic gate arranged within the second power supply domain and configured to operate with a second clock signal (e.g., a second logic gate within a second power supply domain of the Ryzen 3 1200 configured to operate with a second clock signal);

e. a first logic block arranged within the third power supply domain and coupled to the first and second logic gates (e.g., a system and power management unit within the third power supply domain coupled to the first and second logic gates); and

f. a second logic block arranged within the fourth power supply domain and coupled to the first and second logic gates (e.g., an L3 cache within a fourth power supply domain coupled to the first and second logic gates).

63. AMD has known of the '145 patent and its infringement of that patent since at least as early as July 24, 2020.

64. AMD, knowing its products infringe the '145 patent and with the specific intent for others to infringe the '145 patent, has induced infringement of, and continues to induce infringement

of, one or more claims of the '145 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import in or into the United States without authorization the Accused '145 Products, as well as products containing the same. AMD knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on AMD's website at <https://www.amd.com/en>. For example, AMD provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of AMD's products that infringe the '145 patent. *See, e.g.*, <https://www.amd.com/en/processors/ryzen-with-graphics> and <https://www.amd.com/en/press-releases/amd-exhibits-pc-2017may30>. Additional non-limiting examples include the materials found at <https://www.amd.com/en/products/specifications>.

65. AMD has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '145 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused '145 Products, which constitute a material part of the invention of the '145 patent, knowing the Accused '145 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.*, <https://www.amd.com/en> and <https://www.amd.com/en/processors/ryzen-with-graphics>.

66. Monterey has sustained and is entitled to recover damages as a result of AMD's past and continuing infringement

67. AMD has committed—and continues to commit—acts of knowing, or at least willfully

blind, infringing acts despite knowing that its actions constituted infringement of the valid and enforceable '145 patent, despite a risk of infringement that was known or so obvious that it should have been known to AMD, and/or even though AMD otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. AMD's conduct in light of these circumstances is egregious. AMD's knowing, deliberate, and willful infringement of the '145 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT FOUR
INFRINGEMENT OF THE '297 PATENT

68. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

69. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '297 patent.

70. The '297 patent is valid and enforceable.

71. The '297 patent is generally directed to a programmable devices, and more particularly to a programmable hub.

72. Complex electronic systems often required the addition of peripheral units such as operational and instrument amplifiers, filters, timers, digital logic circuits, analog to digital and digital to analog converters. Implementation of these extra peripherals created additional difficulties such as the need for extra space for new components, additional attention during production of a printed circuit board, and increased power consumption. All of these factors can significantly affect the price and development cycle of the project.

73. The '297 patent teaches that prior architectures provided only coarse-grained digital programmability in which only a few fixed functions with a small number of options were available.

74. To improve upon the prior art, the '297 patent discloses, among other things, a Programmable System-on-a-Chip Hub which is configured to enable master processing elements inside and outside the PHUB to simultaneously access peripherals on different busses. The PHUB is programmable to connect to a configurable number of busses, to connect a configurable number of peripherals to the busses, and to configure different address and data word lengths for using over the busses.

75. AMD has directly infringed, and continues to directly infringe, one or more claims of the '297 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, making, using, selling, offering to sell, and/or importing in or into the United States without authorization products covered by one or more claims of the '297 patent, including, by way of example and not limitation, all AMD devices incorporating AMD's Infinity Fabric and Infinity Architecture such as the AMD Ryzen Threadripper, and other products in the EPYC and Ryzen Threadripper, Instinct, and Ryzen Threadripper PRO product families; and all other semiconductor devices, integrated circuits, and products with similar infringing technology (collectively, "the Accused '297 Products").

76. As one non-limiting example, AMD infringes claim 1 of the '297 patent. For example, the AMD Ryzen Threadripper Processors, such as the AMD Ryzen Threadripper 1950x, contain a connection hub, comprising:

- a. one or more master processing elements (e.g., CPU cores);
- b. multiple different separately accessible busses (e.g, busses between the cores and peripherals);
- c. a bus connection circuit configured to enable the master processing elements to access any of the different busses simultaneously (e.g., AMD's Infinity Fabric Scalable

Data Fabric);

d. multiple independently operating bus interface circuits each associated with a different one of the multiple busses (e.g., Coherent AMD SocKet Extender “CAKE”), wherein the bus interface circuits are configured to reduce power consumption by the busses that are not being accessed by one of the master processing elements by powering down the busses that are not being accessed based on a first signal (e.g., bus identification signal) identifying the at least one of the busses and a second signal (e.g., a clock signal) indicating whether the at least one of the busses is active, wherein the first signal and the second signal are generated by one of the master processing elements, and wherein the bus interface circuits are further configured to power up the at least one of the busses in response to determining that the at least one of the busses is being accessed by one of the master processing elements; and

e. a configuration memory configured to store configuration values for the bus connection circuit and the multiple independently operating bus interface circuits (e.g., the Infinity Fabric Configuration Settings).

77. AMD has known of the ’297 patent and its infringement of that patent since at least as early as July 24, 2020.

78. AMD, knowing its products infringe the ’297 patent and with the specific intent for others to infringe the ’297 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the ’297 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import in or into the United States without authorization the Accused ’297 Products, as well as products containing the same. AMD knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or other third parties to infringe at

least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on AMD's website at <https://www.amd.com/en>. For example, AMD provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of AMD's products that infringe the '297 patent. *See, e.g.*, <https://www.amd.com/en> and <https://www.amd.com/en/support>. Additional, non-limiting examples include the materials found on AMD's websites at <https://www.amd.com/en/products/ryzen-threadripper>.

79. AMD has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '297 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused '297 Products, which constitute a material part of the invention of the '297 patent, knowing the Accused '297 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.*, <https://www.amd.com/en/support> and <https://www.amd.com/en/products/ryzen-threadripper>.

80. Monterey has sustained and is entitled to recover damages as a result of AMD's infringement of the '297 patent.

81. AMD has committed—and continues to commit—acts of knowing, or at least willfully blind, infringing acts despite knowing that its actions constituted infringement of the valid and enforceable '297 patent, despite a risk of infringement that was known or so obvious that it should have been known to AMD, and/or even though AMD otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. AMD's conduct in light of these circumstances is egregious. AMD's knowing, deliberate,

and willful infringement of the '297 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT FIVE
INFRINGEMENT OF THE '776 PATENT

82. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

83. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '776 patent.

84. The '776 patent is valid and enforceable.

85. The '776 patent is generally directed to memory systems and in particular, to systems and methodologies that can facilitate the utilization of a memory module that can operate in response to instructions and data received from an external processor.

86. The '776 patent explains the disadvantages associated with prior memory devices. Conventional memory devices performed limited functions such as storing, retrieving, and providing data associated with the memory device. Typically, a host processor could request data from the memory device and could process and/or display the data, as desired by the host processor. But, it was desirable to offload certain tasks, functions, and/or operations to the memory so that the memory could execute the tasks, functions, and/or operations on the data and provide a result to the host without providing the host with the data or associated data that could be associated with the result.

87. The '776 patent overcame the disadvantages of conventional memory devices by teaching, among other things, systems, devices, and methods that can facilitate employing a memory component communicatively connected to a host. The memory component can receive data, instructions, information, etc., from the host related to a task(s), function(s), and/or operation(s) the host is offloading to the memory component, and the memory component can perform such task(s),

function(s), and/or operation(s), and can transmit a result(s) associated therewith to the host, which can utilize the result(s) as desired. The memory component can perform such task(s), function(s), and/or operation(s), without certain sensitive information being provided to the host or other entities.

88. AMD has directly infringed, and continues to directly infringe, one or more claims of the '776 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, making, using, selling, offering to sell, and/or importing in or into the United States without authorization products covered by one or more claims of the '776 patent, including, by way of example and not limitation, the EPYC 7002 Series Processors and other products in the EPYC, Ryzen 3 Pro, Ryzen 5 Pro, Ryzen 7 Pro, Ryzen 9 Pro, Ryzen Threadripper Pro, and Athlon Pro families; products using AMD Pro Security; all semiconductor devices, integrated circuits, and products with a secure processor and/or microcontroller; and all other AMD semiconductor devices, systems, integrated circuits, and products with similar infringing technology (collectively, "the Accused '776 Products").

89. As one non-limiting example, AMD infringes claim 1 of the '776 patent. For example, the AMD EPYC 7002 Series Processor includes a system comprising:

a. an external electronic memory component that comprises a plurality of memory locations (e.g., secure memory of the EPYC 7002 Series Processor) and facilitates storage of data in at least a portion of the plurality of memory locations (e.g., storage of data in the secure memory of the EPYC 7002 Series Processor), wherein the external electronic memory component is configured to be external from and communicatively connected to a host component (e.g., the EPYC 7002 Series Processor is external to a host), and to receive a request to perform at least one of a task, a function, or an operation (e.g., the EPYC 7002 Series Processor receives a request), which is offloaded to the external electronic memory component by the host component (e.g., the

host offloads the task, function, or operation to the EPYC 7002 Series Processor); and

b. an optimized controller component (e.g., the secure processor of the EPYC 7002 Series Processor) configured to be part of the external electronic memory component (e.g., the secure processor is part of the EPYC 7002 Series Processor), wherein, in response to the request, the optimized controller component is configured to perform the at least one of the task, the function, or the operation (e.g., the secure processor of the EPYC 7002 Series Processor performs the task, function, or operation), and wherein, in performance of the at least one of the task, the function, or the operation, the optimized controller component is configured to access a subset of the data stored in the portion of the plurality of memory locations in the external electronic memory component (e.g., the secured processor accesses a subset of data in the secure memory of the EPYC 7002 Series Processor), perform the at least one of the task, the function, or the operation on the subset of the data to facilitate generation of result data that is based at least in part on the subset of the data (e.g., the secure processor of the EPYC 7002 Series Processor, generates a result based on the subset of data), and transmit the result data to a host memory of the host component without transmission of the subset of the data to the host component and without allowance of access of the subset of the data by the host component (e.g., the secure processor of the EPYC 7002 Series Processor transmits the result to a host without transmitting the subset of data to the host and without allowing the host to access the subset of data).

90. AMD has known of the '776 patent and its infringement of that patent since at least as early as June 4, 2021.

91. AMD, knowing its products infringe the '776 patent and with the specific intent for others to infringe the '776 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the '776 patent under 35 U.S.C. § 271, either literally and/or under the

doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import in or into the United States without authorization the Accused '776 Products, as well as products containing the same. AMD knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on AMD's website at www.amd.com. For example, AMD provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of AMD's products that infringe the '776 patent. *See, e.g.,* <https://www.amd.com/en/technologies/pro-security> and <https://www.amd.com/en/processors/epyc-7002-series>. Additional non-limiting examples include the materials found at <https://www.amd.com/en/products/specifications>.

92. AMD has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '776 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused '776 Products, which constitute a material part of the invention of the '776 patent, knowing the Accused '776 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.,* <https://www.amd.com/> and <https://www.amd.com/en/technologies/pro-security>.

93. Monterey has sustained and is entitled to recover damages as a result of AMD's past and continuing infringement.

94. AMD has committed—and continues to commit—acts of knowing, or at least willfully blind, infringing acts despite knowing that its actions constituted infringement of the valid and

enforceable '776 patent, despite a risk of infringement that was known or so obvious that it should have been known to AMD, and/or even though AMD otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. AMD's conduct in light of these circumstances is egregious. AMD's knowing, deliberate, and willful infringement of the '776 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT SIX
INFRINGEMENT OF THE '303 PATENT

95. Monterey incorporates by reference the preceding paragraphs as if fully set forth herein.

96. Monterey is the assignee and lawful owner of all right, title, and interest in and to the '303 patent.

97. The '303 patent is valid and enforceable.

98. The '303 patent is generally directed to memory systems and in particular, to systems and methodologies that can facilitate the utilization of a memory module that can operate in response to instructions and data received from an external processor.

99. The '303 patent explains the disadvantages associated with prior memory devices. Conventional memory devices performed limited functions such as storing, retrieving, and providing data associated with the memory device. Typically, a host processor could receive data from the memory device and could process and/or display the data, as desired by the host processor. But, it was desirable to offload certain tasks, functions, and/or operations to the memory so that the memory could execute the tasks, functions, and/or operations on the data and provide a result to the host without providing the host with the data or associated data that could be associated with the result.

100. The '303 patent overcame the disadvantages of conventional memory devices by

teaching, among other things, systems, devices, and methods that can facilitate employing a memory component communicatively connected to a host. The memory component can receive data, instructions, information, etc., from the host related to a task(s), function(s), and/or operation(s) the host is offloading to the memory component, and the memory component can perform such task(s), function(s), and/or operation(s), and can transmit a result(s) associated therewith to the host, which can utilize the result(s) as desired. The memory component can perform such task(s), function(s), and/or operation(s), without certain sensitive information being provided to the host or other entities.

101. AMD has directly infringed, and continues to directly infringe, one or more claims, including at least claim 1, of the '303 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, making, using, selling, offering to sell, and/or importing in or into the United States without authorization products covered by one or more claims of the '303 patent, including, by way of example and not limitation, the EPYC 7002 Series Processors and other products in the EPYC, Ryzen 3 Pro, Ryzen 5 Pro, Ryzen 7 Pro, Ryzen 9 Pro, Ryzen Threadripper Pro, and Athlon Pro families; products using AMD Pro Security; all semiconductor devices, integrated circuits, and products with a secure processor and/or microcontroller; and all other AMD semiconductor devices, systems, integrated circuits, and products with similar infringing technology (collectively, "the Accused '303 Products").

102. As one non-limiting example, AMD infringes claim 1 of the '303 patent. For example, the AMD EPYC 7002 Series Processor includes a system comprising:

- a. a memory that stores secure data and computer executable components (e.g., a secure memory of the EPYC 7002 Series Processor); and
- b. a processor (e.g., a processor of the EPYC 7002 Series Processor) that executes the following computer executable components stored within the memory:

c. an optimized controller component (e.g., a secure processor of the EPYC 7002 Series Processor) configured to:

d. authenticate a host device associated with the memory and determine, based on the authentication of the host device, an availability of a task (e.g., the secure processor of the EPYC 7002 Series Processor receives a request, authenticates a host device, and determines the availability of a task);

e. perform the task on the secure data to generate result data (e.g., the secure processor determines that a task is available and performs the task on the secure data to generate result data), wherein the memory stores the secure data (e.g., the EPYC 7002 Series Processor stores secure data in a memory), wherein the secure data is a subset of data other than a second subset of data that is used to access the secure data in the memory (e.g., the secure data is different than the data used to access the secure data) and other than a third subset of data that is used to decrypt the secure data (e.g., the secure data is different than the data used to decrypt the secure data), and wherein the host device is not permitted access to the secure data (e.g., the host cannot access the secure data on the EPYC 7002 Series Processor); and

f. transmit the result data to the host device without transmission of the secure data to the host device (e.g., the secure processor transmits the result data to the host without transmitting the secure data to the host).

103. AMD has known of the '303 patent and its infringement of that patent since at least as early as June 4, 2021.

104. AMD, knowing its products infringe the '303 patent and with the specific intent for others to infringe the '303 patent, has induced infringement of, and continues to induce infringement of, one or more claims of the '303 patent under 35 U.S.C. § 271, either literally and/or under the

doctrine of equivalents, by, among other things, actively inducing others, including its customers, to make, use, sell, offer to sell, and/or import in or into the United States without authorization the Accused '303 Products, as well as products containing the same. AMD knowingly and intentionally instructs its customers, OEMs, foundry suppliers, distributors, and/or third parties to infringe at least through user manuals, product documentation, design specifications, layout files, formulas, and other materials, such as those located on AMD's website at www.amd.com. For example, AMD provides data sheets, development content, diagrams, white papers, and software instructing customers on uses of AMD's products that infringe the '303 patent. *See, e.g.,* <https://www.amd.com/en/technologies/pro-security> and <https://www.amd.com/en/processors/epyc-7002-series>. Additional non-limiting examples include the materials found at <https://www.amd.com/en/products/specifications>.

105. AMD has contributed to the infringement of, and continues to contribute to the infringement of, one or more claims of the '303 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by, among other things, selling, offering to sell, and/or importing in or into the United States the Accused '303 Products, which constitute a material part of the invention of the '303 patent, knowing the Accused '303 Products to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use. *See, e.g.,* <https://www.amd.com/> and <https://www.amd.com/en/technologies/pro-security>.

106. Monterey has sustained and is entitled to recover damages as a result of AMD's past and continuing infringement.

107. AMD has committed—and continues to commit—acts of knowing, or at least willfully blind, infringing acts despite knowing that its actions constituted infringement of the valid and

enforceable '303 patent, despite a risk of infringement that was known or so obvious that it should have been known to AMD, and/or even though AMD otherwise knew or should have known that its actions constituted an unjustifiably high risk of infringement of that valid and enforceable patent. AMD's conduct in light of these circumstances is egregious. AMD's knowing, deliberate, and willful infringement of the '303 patent entitles Monterey to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

RELIEF REQUESTED

Wherefore, Monterey respectfully requests that this Court enter judgment against AMD as follows:

- A. that AMD has infringed each of the Patents-in-Suit;
- B. that AMD's infringement of each Patents-in-Suit is and has been willful;
- C. that Monterey be awarded damages adequate to compensate it for the patent infringement that has occurred, together with pre-judgment interest, post-judgment interest, and costs;
- D. that Monterey be awarded an accounting and additional damages for any infringing sales not presented at trial;
- E. that Monterey be awarded all other damages permitted by 35 U.S.C. § 284, including without limitation increased damages up to three times the amount of compensatory damages found;
- F. that this is an exceptional case and that Monterey be awarded its costs and reasonable attorneys' fees incurred in this action as provided by 35 U.S.C. § 285;
- G. that AMD as well as its officers, directors, agents, employees, representatives, attorneys, and all others acting in privity or in concert with it, its subsidiaries,

divisions, successors and assigns be permanently enjoined from further infringement of each of the Patents-in-Suit;

- H. that, in the event a permanent injunction preventing further infringement of each of the Patents-in-Suit is not granted, Monterey be awarded a compulsory ongoing licensing fee for any such further infringement; and
- I. such other relief as this Court deems just and proper.

DEMAND FOR JURY TRIAL

Monterey hereby demands trial by jury on all claims and issues so triable.

Dated: August 12, 2021

By: /s/ Jonas McDavit w/permission Charles
Everingham IV

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